UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/481,853	01/14/2000	Gary L. Swoboda	TI-28936	6203

23494 7590 06/18/2003

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER
DAY, HERNG DER

ART UNIT	PAPER NUMBER
2123	3

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PRE

Office Action Summary	Application No.	Applicant(s)	
	09/481,853	SWOBODA, GARY L.	
	Examiner	Art Unit	
	Herng-der Day	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-3 have been examined and claims 1-3 have been rejected.

Priority

2. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. The provisional application number is 60/120,810, filed February 19, 1999.

Drawings

3. Figures 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:

Appropriate correction is required.

4-1. It appears that "the nET1 signal is called Emulation and Test 0 Not", as described in lines 14-15 of page 10, should be "the nET1 signal is called Emulation and Test 1 Not" because the nET0 signal is already called Emulation and Test 0 Not, as described in lines 12-13 of page 10.

4-2. Lots of inconsistent reference signs exist in the specification. For example, as described in lines 1-3 of page 26, both data comparison unit and address comparison unit use the same reference sign 310. However, in FIG. 7, data comparison unit uses reference sign 320.

5. The attempt to incorporate subject matter into this application by reference to nine applications, as described in lines 7-28 of page 1, which appear to consist of essential matter, is improper because there is insufficient identification so as to direct the Examiner or future potential readers to the referenced material. The Examiner requires this information in order to properly review Applicant's specification. Furthermore, if the current application issues as a patent before the nine applications, Applicants will be required to physically incorporate the incorporated material into the instant specification. Please refer to section 608.01(p), which recites:

> "INCORPORATION BY REFERENCE
>
> The Commissioner has considerable discretion in determining what may or may not be incorporated by reference in a patent application. General Electric Co. v. Brenner, 407 F.2d 1258, 159 USPQ 335 (D.C. Cir. 1968). The incorporation by reference practice with respect to applications which issue as U.S. patents provides the public with a patent disclosure which minimizes the public's burden to search for and obtain copies of documents incorporated by reference which may not be readily available. Through the Office's incorporation by reference policy, the Office ensures that reasonably complete disclosures are published as U.S. patents. The following is the manner in which the Commissioner has elected to exercise that discretion. Section A provides the guidance for incorporation by reference in applications which are to issue as U.S. patents. Section B provides guidance for incorporation by reference in benefit applications; i.e., those domestic (35 U.S.C. 120) or foreign (35 U.S.C. 119(a)) applications relied on to establish an earlier effective filing date.
>
> A. Review of Applications, Which Are To Issue as Patents.
>
> An application as filed must be complete in itself in order to comply with 35 U.S.C. 112.
>
> Material nevertheless may be incorporated by reference, Ex parte Schwarze, 151 USPQ 426 (Bd. App. 1966). An application for a patent when filed may incorporate "essential material" by reference to (1) a U.S.

patent, (2) a U.S. patent application publication, or (3) a pending U.S. application, subject to the conditions set forth below. "Essential material" is defined as that which is necessary to (1) describe the claimed invention, (2) provide an enabling disclosure of the claimed invention, or (3) describe the best mode (35 U.S.C. 112). In any application which is to issue as a U.S. patent, essential material **may not be incorporated by reference** to (1) patents or applications published by foreign countries or a regional patent office, (2) non-patent publications, (3) a U.S. patent or application which itself incorporates "essential material" by reference, or (4) a foreign application.

Nonessential subject matter may be incorporated by reference to (1) patents or applications published by the United States or foreign countries or regional patent offices, (2) prior filed, commonly owned U.S. applications, or (3) non-patent publications however, hyperlinks and/or other forms of browser executable code cannot be incorporated by reference. See MPEP § 608.01. Nonessential subject matter is subject matter referred to for purposes of indicating the background of the invention or illustrating the state of the art.

Mere reference to another application, patent, or publication is not an incorporation of anything therein into the application containing such reference for the purpose of the disclosure required by 35 U.S.C. 112, first paragraph. In re de Seversky, 474 F.2d 671, 177 USPQ 144 (CCPA 1973). **In addition to other requirements for an application, the referencing application should include an *identification* of the referenced patent, application, or publication**. Particular attention should be directed to specific portions of the referenced document where the subject matter being incorporated may be found. Guidelines for situations where applicant is permitted to fill in a number for Application No. _____ left blank in the application as filed can be found in In re Fouche, 439 F.2d 1237, 169 USPQ 429 (CCPA 1971) (Abandoned applications less than 20 years old can be incorporated by reference to the same extent as copending applications; both types are open to the public upon the referencing application issuing as a patent. See MPEP § 103).

1. Complete Disclosure Filed

If an application is filed with a complete disclosure, essential material may be canceled by amendment and may be substituted by reference to a U.S. patent or an earlier filed pending U.S. application. The amendment must be accompanied by an affidavit or declaration signed by the applicant, or a practitioner representing the applicant, stating that the material canceled from the application is the same material that has been incorporated by reference.

If an application as filed incorporates essential material by reference to a U.S. patent or a pending and commonly owned U.S.

application, applicant may be required prior to examination to furnish the Office with a copy of the referenced material together with an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the copy consists of the same material incorporated by reference in the referencing application. However, if a copy of a printed U.S. patent is furnished, no affidavit or declaration is required.

Prior to allowance of an application that incorporates essential material by reference to a pending U.S. application, the examiner shall determine if the referenced application has been published or issued as a patent. If the referenced application has been published or issued as a patent, the examiner shall enter the U.S. Patent Application Publication No. or the U.S. Patent No. of the referenced application in the specification of the referencing application (see MPEP § 1302.04). **If the referenced application has *not* been published or issued as a patent, applicant will be required to amend the disclosure of the referencing application to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating the amendatory material consists of the same material incorporated by reference in the referencing application.**

2. Improper Incorporation

Reliance on a ***commonly assigned copending application*** by a ***different inventor*** may ordinarily be made for the purpose of completing the disclosure. See In re Fried, 329 F.2d 323, 141 USPQ 27 (CCPA 1964), and General Electric Co. v. Brenner, 407 F.2d 1258, 159 USPQ 335 (D.C. Cir. 1968). ***Since a disclosure must be complete as of the filing date, subsequent publications or subsequently filed applications cannot be relied on to establish a constructive reduction to practice or an enabling disclosure as of the filing date.*** White Consol. Indus., Inc. v. Vega Servo-Control, Inc., 713 F.2d 788, 218 USPQ 961 (Fed. Cir. 1983); In re Scarbrough, 500 F.2d 560, 182 USPQ 298 (CCPA 1974); In re Glass, 492 F.2d 1228, 181 USPQ 31 (CCPA 1974)."

The following nine incorporated applications entitled: (1) "EMULATION SUSPEND MODE WITH DIFFERING RESPONSE TO DIFFERING CLASSES OF INTERRUPTS"; (2) "EMULATION SUSPENSION MODE WITH Debug suspend MODE EXTENSION"; (3) "EMULATION SUSPEND MODE HANDLING MULTIPLE STOPS AND STARTS"; (4) "EMULATION SUSPEND MODE WITH FRAME CONTROLLED RESOURCE ACCESS";

(5) "EMULATION SUSPEND MODE WITH INSTRUCTION JAMMING"; (6) "SOFTWARE EMULATION MONITOR EMPLOYED WITH HARDWARE SUSPEND MODE"; (7) "EMULATION SYSTEM WITH SEARCH AND IDENTIFICATION OF OPTIONAL EMULATION PERIPHERALS"; (8) "EMULATION SYSTEM WITH PERIPHERALS RECORDING EMULATION FRAME WHEN Debug suspend GENERATED"; (9) "EMULATION SYSTEM EMPLOYING SERIAL TEST PORT AND ALTERNATIVE DATA TRANSFER PROTOCOL", as listed on page 1 of the specification, have not been considered by the examiner.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-3 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example, as described in lines 12-14 of page 18, "The address comparison unit 310 generates a debug suspend request when the ACNTL register ASTOP and AFEN bits are TRUE". However, the specification fails to define AFEN bit. Accordingly, it is unclear for one skilled in the art how to generate a debug suspend request without undue experiment.

Also note, claims 1-3 contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most

nearly connected, to make and/or use the invention because the essential matters are improperly incorporated by reference, as detailed in section **5** above.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Brannick et al., U.S. Patent 6,289,300 issued September 11, 2001 and filed February 6, 1998.

9-1. Regarding claim 1, Brannick et al. disclose a method of in circuit emulation of an integrated circuit including a digital data processor capable of executing program instructions, comprising the steps of:

detecting a first debug event during normal program execution (instruction to start emulation, column 2, lines 61-66);

upon detection of the first debug event suspending program execution except for at least one type interrupt service routine executed in response to a corresponding interrupt (suspend execution, column 2, lines 61-66);

incrementing a debug frame counter upon each interrupt (auxiliary programme address counters, column 3, lines 8-14);

decrementing the debug frame counter upon each return from interrupt (auxiliary programme address counters, column 3, lines 8-14); and

detecting at least one second debug event during an interrupt service routine (priority non-maskable interrupt request, column 5, lines 19-23);

upon detection of the second debug event suspending program execution of the interrupt service routine while permitting execution of other interrupt service routines in response to corresponding interrupts (priority non-maskable interrupt request, column 5, lines 19-23); and

storing the count of said debug frame counter upon each second debug event (auxiliary stack, column 3, lines 8-14).

9-2. Regarding claim 2, Brannick et al. further disclose said integrated circuit includes a plurality of debug event detectors, and wherein:

said step of detecting a first debug event occurs at a first one of the plurality of debug event detectors (a signal on the emulator control pin, column 2, lines 61-66);

said step of detecting a second debug event occurs at a second one of the plurality of debug event detectors (breakpoint instruction, column 5, lines 44-47); and

said step of storing the count of said debug frame counter occurs at said second one of the plurality of debug event detectors (auxiliary stack, column 3, lines 8-14).

9-3. Regarding claim 3, Brannick et al. disclose the method further comprising:

determining an order of interrupts triggering second debug events by reading said stored count of said debug frame counter from each of said debug event detectors (auxiliary stack, column 3, lines 8-14).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference to Johnson et al., U.S. Patent 5,630,102 issued May 13, 1997, is cited as disclosing an in-circuit-emulation event management system.

Reference to Swoboda, U.S. Patent 5,828,824 issued October 27, 1998, is cited as disclosing a method for debugging an integrated circuit using extended operating modes.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Herng-der Day whose telephone number is (703) 305-5269. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (703) 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Herng-der Day
June 16, 2003

SAMUEL BRODA, ESQ.
PRIMARY EXAMINER